

of nature," and, since the laws of nature are God-given, it is a religious obligation to abide by them.² This multifactorial hygienic hypothesis is now used to explain two contemporary, poorly understood scourges: cancer and coronary artery disease. These diseases are currently touted as caused primarily by environmental factors and personal life-style. For the modern consumer of health care, illness is portrayed as nature taking revenge on our wicked, technocratic life-styles. Crude statistics are brandished to an eager public, and various foods and practices can be assigned nearly mythical properties on weak or absent data. The unspoken message is that cancer and coronary artery disease are companions of industrial civilization and that illness in general is the result of imprudent life-styles.

People want simple, comprehensible causes for disease, ones that they can control. To meet this demand, the temptation is to market a method of preventing early demise. From the medical literature come the oversimplified type A personality of Friedman, the high-fiber diet of Burkitt, the "seven habits of healthy living" and other controversial behavioral means of avoiding cancer, heart disease and death.³⁻⁵

The message, again, is that everyone is responsible for his or her own health, and culpable for his or her own disease, and that illness is the result of a decadent society's crimes against nature. This metaphorical model of disease, while not imperative to a health promotion program, is easy to stumble into, and commonly found in such programs. Epidemiologic data do not fully explain this doctrine of physical hygienism, and the subliminal, metaphorical message of these programs

is one of religious obligation to adhere to their tenets. Such models do not bear scrutiny when subjected to the constraints of scientific method and rational thought that are applied to the rest of medicine.

Skepticism is not held in high esteem in this ideologic climate. To admit ignorance of the cause of disease, and to broadcast it, is tantamount to treason. One who does admit ignorance becomes a medical pariah among the zealots preaching self-determination. Unfortunately, zeal and optimism, however shallow, are much more easily marketed than are candor and skepticism. As Lewis Thomas put it, "when it comes to serious illness, the public tends to be more skeptical about the skeptics, and more willing to believe the true believers. It is medicine's oldest dilemma, not to be settled by candor or by any kind of rhetoric; what it needs is a lot of time and patience, waiting for science to come in, as it has in the past, with solid facts."⁶ The entry of physicians and their agents into health promotion campaigns has a sound ethical basis, but caution must be exercised so as not to compromise this ethic in pursuit of financial success.

. . . *Caveat vendor.*

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The Therapeutic Value of Pets

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While domestic pets are capable of transmitting disease and inflicting injury, they may also be of benefit to human health. Studies suggest that companion animals, in addition to their well-known role as helpers to the handicapped, may alleviate depression, solace the lonely, facilitate psychotherapy, socialize criminals, lower blood pressure, increase survivorship from myocardial infarction and ease the social pain of aging in our society.

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Strong intuition and numerous anecdotes suggest that the human relationship with pets is beneficial to both, but actual scientific data are sparse. Various movements are afoot to introduce companion animals as therapeutic aids in geriatrics, psychotherapy and the treatment of chronically ill and handicapped children and adults.¹ It appears to be time to examine what data are available to support these therapies. Most studies so far have been reported in veterinary, nursing

and sociological literature, with the medical literature concentrating preponderantly on the negative aspects of domestic animals—the zoonoses.

The human-companion animal bond, as it is now called, is an ancient one. Humans and dogs, especially, have an old relationship, of perhaps 10,000 to 15,000 years' association. The dog, descended from the wolf, *Canis lupus*, presumably served early humans as a hunter, guard, alarm-giver, herder,

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companion and occasionally dinner. Members of the Felidae family, the cats, have their origins of domestication more recently, which may be why they are less servile than dogs. There are no good records of domesticated cats earlier than 1500 BC, but the event may have occurred earlier. Egyptians made cats sacred as early as 2500 to 2200 BC but the animal might not have been domesticated at that time.

Today, Americans spend more than \$4 billion a year to feed 48 million dogs, 27 million cats, 25 million birds, 250 million fish and 125 million assorted other captive creatures.² Why? What are they good for? What are the advantages and disadvantages of pet ownership and, especially, what are the medical implications of so many animals who share our lives?

The Disadvantages of Pets

Pets cost a lot of money, with pet-care products a multibillion dollar industry. Old people, in particular, may be ill able to afford companion animals, whose food bill may be 80 cents or more a day, let alone veterinary medical expenses, licensure, grooming, toys and the like. In addition to their maintenance cost, animals may be inconvenient and even destructive, causing hairy rugs, shredded upholstery, chewed shoes and the inevitable "accidents" of house-bound animals. Moreover, though domesticated, companion animals retain the power to injure people, as in cat scratches and dog bites. These account for millions of incidents per year; and it is estimated that every year 2% of all children between 5 and 9 years old suffer a dog bite. Dog attacks still occasionally kill human beings, though these are blessedly rare.³

Of greatest interest to physicians, perhaps, are the zoonoses and other illnesses attributable to domestic animals. Even if one omits farm animals and focuses on domestic pets, these are many (see Table 1).⁴ In addition, an untold number of people have atopic responses to their domestic pets. These hazards, however, do not deter pet owners. Remarkably, in one study 73% of families with pets to whom a member of the family was allergic refused to get rid of the animal. Moreover, allergists who own pets were far less adamant in advising pet removal from their atopic patients than were non-pet-owning allergists.⁵

TABLE 1.—Some Diseases Transmissible to Humans From Cats and Dogs*

Anthrax	<i>Salmonella</i>
<i>Staphylococcus</i>	Brucellosis
<i>Streptococcus</i>	Cat scratch fever
Rhus dermatitis	Chagas' disease
Coccidiosis (<i>Isospora</i>)	Cutaneous larva migrans
Psittacosis	Ringworm
Dirofilariasis	<i>Dipylidium caninum</i>
<i>Campylobacter</i>	Feline pneumonitis
Mycobacteria	Leishmaniasis
Lymphocytic choriomeningitis	Leptospirosis
Listeriosis	<i>Echinococcus</i>
Blastomycosis	Scabies
Pasteurellosis	Sporotrichosis
Plague	Toxoplasmosis
Yersiniosis	Toxocariasis
Rabies	?Multiple sclerosis

Fleas!

*Adapted from Bekaert.⁴

Even if one can afford the pet, avoids injury and suffers no disease, fleas remain a constant annoyance and threat. With all these horrors, what good do animals do?

The Advantages of Pets

Helper animals include hunting dogs, herders, guard dogs and the use of dogs in police work. In the medical context, dogs have proved invaluable as guide dogs for the blind. Less familiar to most physicians is the program of hearing dogs for the deaf (dogs trained to alert their deaf owners to doorbells, sirens, shouts and so forth), medic-alert dogs (trained to pull alarms for physically handicapped owners should they fall) and companion monkeys whose nimble fingers manipulate objects for quadriparetic patients. Horses are used in "hippothotherapy" for crippled children, who, though they cannot walk, may gain self-esteem through being "tall in the saddle."⁶

Pets may be great morale boosters. Psychiatrists suggest that persons in reactive depressions may have their gloom lifted in the presence of animals. Other studies suggest that those who live with pets have higher morale and general better overall health status than those without pets. But it may simply be that pet owners tend to be richer than non-pet owners, as people in the lower socioeconomic classes tend to have fewer pets.⁷

Domestic animals may be social lubricants for the lonely, increasing the number of social contacts and conversations a person has, especially during dog-walking. In addition, it is clear that the bonds between certain people and their pets are not unlike those between parents and children. Not yet well studied but intimated in the companion-animal literature is the idea that the loss of a beloved pet may create an owner response similar to that experienced with the death of a human loved one—that is, increased mortality or morbidity or even suicide in the bereaved.⁸⁻¹⁰ The situation is worsened because there is no socially accepted rite for grieving for a pet. While the death of a child or spouse mobilizes family, neighbors and co-workers into a supporting web for the bereaved, the response to an animal's death might be no more than "It was only a cat. Why don't you just get another one?"

Depression and emotional instability, while they may be worsened by the death of an animal, may also be alleviated by animal contact. Animals were introduced 200 years ago into York Retreat, an institute for the mentally disturbed in England.¹ By 1970, in one survey, some 48% of institutions for the mentally disturbed used animals in some capacity.⁶ Individual psychotherapists describe using dogs as "co-therapists" in their treatment of autistic children, who may be willing to speak to a dog more readily than to a physician.¹¹ Severely disturbed people may, however, abuse animals, and this therapeutic association must be closely monitored.

The use of companion animals in the penal system is notable, and an interesting paradox occurs: the animals appear to domesticate the men. The most famous episode, perhaps, of the rehabilitative capacity of pets was the well-told story of Robert Stroud, the "Birdman of Alcatraz," whose fascination with birds led to his becoming a world-renowned ornithologist who ultimately obtained release. Birds and cats were introduced into San Quentin prison, but were removed in 1976. The cats multiplied and, though some were individual pets, others became scavengers. Also, some of the inmates

did not like cats, and fights ensued. Successful programs in prisons using animals include that at the Lima State Hospital for the Criminally Insane, where animals were found to increase morale and communication among inmates and to concurrently decrease violence and destructive behavior among 375 psychopaths. The only cruelty to any of the animals reported in this setting occurred when an inmate was being transferred to another institution and tried to stuff his pet bird into a suitcase.⁶

The influence of pets on hypertension has been studied, and data suggest that dogs have an antihypertensive effect. In one experiment, children were found to have a lower systolic and diastolic blood pressure in the mere presence of a dog, even though they did not interact with the animal. Another experiment looked at the influence on blood pressure of staring at fish in a tank and found that watching an aquarium was a blood pressure-lowering activity in both normotensive and hypertensive subjects.¹² Stroking or petting an animal appears to lower both blood pressure and pulse rate in both the human who is petting and the animal being petted.⁶ Perhaps the most publicized effect of animals on the human cardiovascular system was that studied by Katcher and colleagues on patients in coronary care units (CCU). Of 92 patients in CCU observed for one year after their hospital stay, 5.6% of those with pets had died compared with 28% of those without pets. According to these authors, multivariable analysis of their data showed that pet ownership was an independent predictor of survival after discharge from a CCU. They speculated that their patients with pets might have something to live for. Significantly, the relationship between pet ownership and survival remained true even when persons owning dogs were excluded from analysis.¹³ This was done to control for the possible influence of greater regular exercise among dog owners, for the London walk study of 1979 did, indeed, show that persons walking with dogs tend to go for longer walks (in time) than those who walked without dogs.¹⁴

One of the potentially most exciting therapeutic uses of companion animals is in the field of geriatrics. On an individual and institutional level, animals may provide old people with companionship, focus, responsibility, exercise, affection and safety. A number of programs have sprung up in recent years to introduce animals into nursing homes, either on periodic visits or as full-time "employees." Though these animal-nursing home programs have risks—such as zoonoses, injuries, sanitation problems, noise, uncontrolled breeding of animals, abuse of the animals, cost and legal complications—it may well be that the benefits outweigh the risks. More careful and controlled studies are needed.^{6,15,16}

An unexpected benefit of animal ownership by the elderly was suggested by a study of psychology undergraduates in which the students were shown a variety of pictures of persons in situations with and without animals. In one picture, an older woman was depicted without a dog and was characterized as lazy by 15% and industrious by 33% of the undergrad-

uates. When the dog was added to the picture, 43% of respondents described her as industrious, implying that the dog actually augments the positive image of an elderly woman.¹⁷

Conclusion

In spite of known risks, human beings and companion animals have formed a remarkable bond over the centuries. More scientific work is needed to study the therapeutic ratio of pet ownership, but some current data suggest that dependent, warm, loving and uncritical beings may be of significant benefit to a wide range of people, with special meaning to those—the elderly, the handicapped and the mentally and emotionally disturbed—whom other human beings may abjure.

Postscript

Readers wishing further information on the risks and benefits of companion animals may write to the California Veterinary Medical Association, 655 University Avenue, Suite 115, Sacramento, CA 95825.

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